

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

STUDIES OF NEOTROPICAL CADDISFLIES, XIV:
ON A COLLECTION FROM NORTHERN ARGENTINA

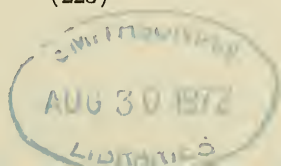
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During a recent trip to South America I was fortunate to be able to spend from 30 March to 9 April 1971, collecting in the Provinces of Santa Fe and Misiones, Argentina, two areas of particular concern to me. The first, Santa Fe, is type-locality for many species described by Navas, and topotypical collections are necessary in order to establish the identity of many of these species. The Province of Misiones is of interest in relation to the adjacent province of Santa Catarina, Brazil, whose fauna is fairly well known and rather distinctive.

Collections of caddisflies were made at two sites in Santa Fe using an ultraviolet light. The first site overlooked the Río Salado from the property of the Instituto Nacional de Limnología in Santo Tomé. This river, several tens of meters in width, is rather slow-flowing with silt and sand banks, and generally with floating marginal vegetation. The second site was a few kilometers east of Santa Fe on the road to Paraná where it crosses several small bridges marked Ao. Saladillo, numbers 1, 2, and 3. The collection was made at bridge number 2, where the drainage consists of a small riffle area just above the road, and shallow, weed-filled ponds above and below the riffle.

The collections from Misiones were made in or near Puerto Rico which is about midway between Posadas and Iguazú near the Río Paraná. The collections from Puerto Rico were made at an ultraviolet light overlooking the Río Paraná at either the small "naval station" or the "fishing club" near town. The river here is rather swift, although very broad and silty,



and apparently flows over some submerged ledges. The site at Capioví is about 15 kilometers south of Puerto Rico at the small falls near town. The shallow stream, about 1-2 meters wide is milky in appearance and flows over bedrock, boulders, and gravel. It is dammed just above the falls, with most of the flow diverted through a sawmill, thus reducing the falls to hardly more than a trickle. Most of the caddisflies were attracted to the ultraviolet light operated beside the falls, but a few additional specimens were beaten from vegetation overhanging the stream. The stream at Mbopicua is the first major drainage south of Puerto Rico. It is approximately the same size as the one at Capioví, but has a much lower gradient. It alternates between gravel riffles and long pools. The light was operated on the old bridge over the stream, and the larval collections were made from the rubble just below the new bridge.

As a result of these collections, it has been possible to identify a number of poorly known species. However, of greater interest has been the elucidation of several zoogeographic patterns. The first pattern is associated with the larger lowland rivers and covers most of eastern South America, at least. Many of the species of the genera *Cyrnellus*, *Nyctiophylax*, *Leptonema*, *Neoleptonema*, *Leptocella*, *Oecetis*, and *Brachysetodes* have rather extensive distributions at least in the Paraná basin, often over most of lowland South America, and sometimes Central America as well. These species were generally collected at Santa Fe and Puerto Rico.

The second pattern is one of a much more restricted distribution that includes the low mountains of Misiones and adjacent Brazil. This fauna, which is much better known from Brazil, includes a number of endemics of rather isolated taxonomic position. The species *Atopsyche longipennis*, *Mexitrichia albolineata*, *M. teutonia*, *M. unota*, *Chimarra brasiliiana*, *Abtrichia antennata*, and *Smicridea* (R.) *weidneri* which I include in this fauna were generally collected at the small streams of Misiones (Capioví and Mbopicua). The distribution of the remaining species is not yet well enough known to permit a suggestion of their distributional patterns.

I express my appreciation to Dr. Raúl A. Ringuelet and Dr. Ricardo A. Ronderos of the Universidad Nacional de La Plata for their help in Buenos Aires and in arranging for the trip to Santa Fe. Dr. A. A. Bonetto and the entire staff of the Instituto Nacional de Limnología were extremely cordial and helpful during our stay in Santa Fe. Prof. Dr. Herbert Weidner very kindly arranged for the loan of the types of *Rhyacophylax brasiliensis* from the Hamburg Museum. I am especially grateful to my wife for all the time she spent helping with the collections, both day and night.

Unless otherwise stated, all collections herein reported were made in Argentina by Carol M. and Oliver S. Flint, Jr.

RHYACOPHILIDAE

Atopsyche Banks, 1905

Atopsyche longipennis (Ulmer)

Psilochorema longipenne Ulmer, 1905a:110.

Atopsyche longipennis (Ulmer).—Ulmer, 1907b:205.—Ross & King, 1952: 202.

Originally described from Santa Catarina in Brazil and previously known only from this province, the presence of *A. longipennis* is here recorded from Argentina for the first time.

Material: Prov. Misiones, Mbopigua, 6–7 April 1971, 1♂ metamorphotype, 1♀. Puerto Rico, 4–8 April 1971, 1♀.

GLOSSOSOMATIDAE

Mexitrichia Mosely, 1937

Mexitrichia albolineata (Ulmer)

Mortoniella species Ulmer, 1906:98.

Mortoniella albolineata Ulmer, 1907a:44.

Mexitrichia albolineata (Ulmer).—Flint, 1966:2.

The discovery of specimens agreeing with the type of this species and other specimens agreeing with *M. teutonia* Mosely in the same collection, makes me conclude that the two are valid species, albeit closely related, not synonyms as earlier stated (Flint, 1966:2–3). The differences pointed out in 1966 are just those that distinguish the two species in these collections. The lectotype of the species is from Santa Catarina, Brazil. *M. albolineata* was subsequently recorded from Rio de Janeiro, Brazil, and Salta, Argentina. These records, however, should be held in abeyance until the presence of the species is confirmed by examination of the genitalia of males from these localities.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 1 ♂. Capioví, 5 April 1971, 1 ♂.

Mexitrichia teutonia Mosely, RESURRECTED SPECIES

Mexitrichia teutonia Mosely, 1939:223.—Flint, 1963:474.

As pointed out above, I am resurrecting *M. teutonia* Mosely. The species was described from Santa Catarina, Brazil, and recorded from Minas Gerais, Brazil. Larvae and male metamorphotypes of the species were taken at Mbopicua.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 8 ♂. Mbopicua, 6–7 April 1971, 18 ♂, 1 ♂, 2 ♀ metamorphotypes, larvae and pupae. Capioví, 5 April 1971, 6 ♂.

Mexitrichia unota Mosely

Mexitrichia unota Mosely, 1939:223.

This species was described from Santa Catarina, Brazil, and is here recorded from Argentina for the first time.

Material: Prov. Misiones, Capioví, 5 April 1971, 1 ♂. Puerto Rico, 4–8 April 1971, 1 ♂.

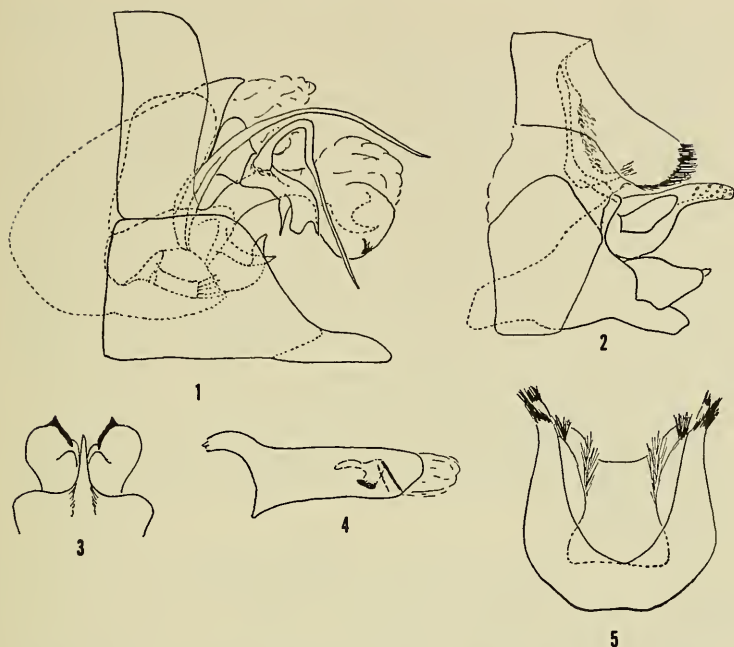
Protophila Banks, 1904

***Protophila misionensis* new species**

Figure 1

This species, the first of the genus known from Argentina, is related to the Mexican species *P. guata* Mosely and *P. spangleri* Flint, both of which have the lateral margin of the ninth segment produced into a long process, and the dorsal margin of the tenth tergum similarly produced. From both of these species, *P. misionensis* is to be recognized by the more elongate eighth sternum, and the differently shaped tenth tergum and aedeagus.

Adult: Length of forewing, 3 mm. Color in alcohol, pale brown. Sixth sternum with a short, pointed, mesal process. Male genitalia: Eighth sternum broadly produced posteriad, narrowly divided apico-mesally for half length. Ninth segment produced and rounded anterolaterally, barely produced posteroventrally; posterolateral margin developed into a long slender process curving over tenth tergum and aedeagus. Tenth tergum with a small basal segment on each side; apical segment slightly elongate, apex divided into 3 ventrally directed teeth; basodorsally bearing a long, slender process which is first directed laterad, then mesad, and finally posteroventrally, becoming contiguous to apex of aedeagus. Aedeagus with a mesal, basodorsal lobe; a pair of ventral rodlike appendages; posteroventrally with 2 pairs of appendages, lateralmost swordlike, directed posteriad, mesal pair with tips pointed and upturned; a narrow central tube, apically developed



FIGS. 1-5. *Protoptila misionensis* n.sp.: 1, genitalia, lateral. *Chimarra parana* n.sp.: 2, genitalia, lateral; 3, ninth sternum and claspers, ventral; 4, aedeagus, lateral; 5, eighth tergum, posterodorsal.

into a short, broad, troughlike section with posterior margin bearing a small tooth ventrolaterally, membranous dorsally, and with an internal spine.

Material: Holotype, male: Argentina, Prov. Misiones, Mbopicua, near Puerto Rico, 6-7 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72158.

PHILOPOTAMIDAE

Chimarra Stephens, 1829

***Chimarra* (*Curgia*) *parana* new species**

Figures 2-5

This species is closely related to *C. brasiliiana* (Ulmer) from which it may be distinguished by the many small golden spots on the forewing and golden hair on the head. In *C. brasiliiana* these hairs are silvery and the forewings are marked with fewer, larger spots. The male genitalia are also very similar in the two species, but the central portion

of the eighth tergum in *C. parana* possesses two pairs of brushes rather than one, the tenth tergum is narrow apically and directed posteriad, and the claspers are more elongate.

Adult: Length of forewing, 5–7 mm. Color generally dark brown; head with golden hairs; forewing with dark brown hair with numerous small spots of golden hair. Fifth sternum with a round, dark, anterolateral mark. Male genitalia: Eighth tergum with posterolateral arms broad, apices bearing brushes of specialized setae; posteromesal face nearly vertical, bearing on lateral margins 2 pairs of brushes, dorsal-most linear and rather diffuse, ventralmost on a short process and rather dense. Ninth segment produced anteroventrally, with an elongate posteromesal process. Tenth tergum hoodlike; apex narrow, directed posteriad, with many sensillae. Cercus large, clavate. Clasper small, slightly elongate, with a small apicomesal tooth. Aedeagus with a pair of small spines and a rod and ring assembly.

Material: Holotype, male: Argentina, Prov. Misiones, Puerto Rico, 4–8 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72159. Paratypes: Same data, 15 ♂, 11 ♀. Mbopicua, 6–7 April 1971, 29 ♂, 37 ♀. Capióví, 5 April 1971, 3 ♀.

Chimarra (Curgia) Brasiliana (Ulmer)

Chimarrrha brasiliana Ulmer, 1905a:96.

Chimarra brasiliana (Ulmer).—Fischer, 1961:58.—Flint, 1966:3.

I hesitate to record the presence of this species in Argentina for the first time when the record is based on females only. However, the examples are in agreement with Brazilian specimens in coloration and in all characters of the genitalia, whose differences from the preceding species are very minute.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 2 ♀.

PSYCHOMYIDAE

Polyplectropus Ulmer, 1905a

Polyplectropus elongatus (Yamamoto)

Polycentropus elongatus Yamamoto, 1966:909.

Polyplectropus elongatus (Yamamoto).—Flint, 1968:21.

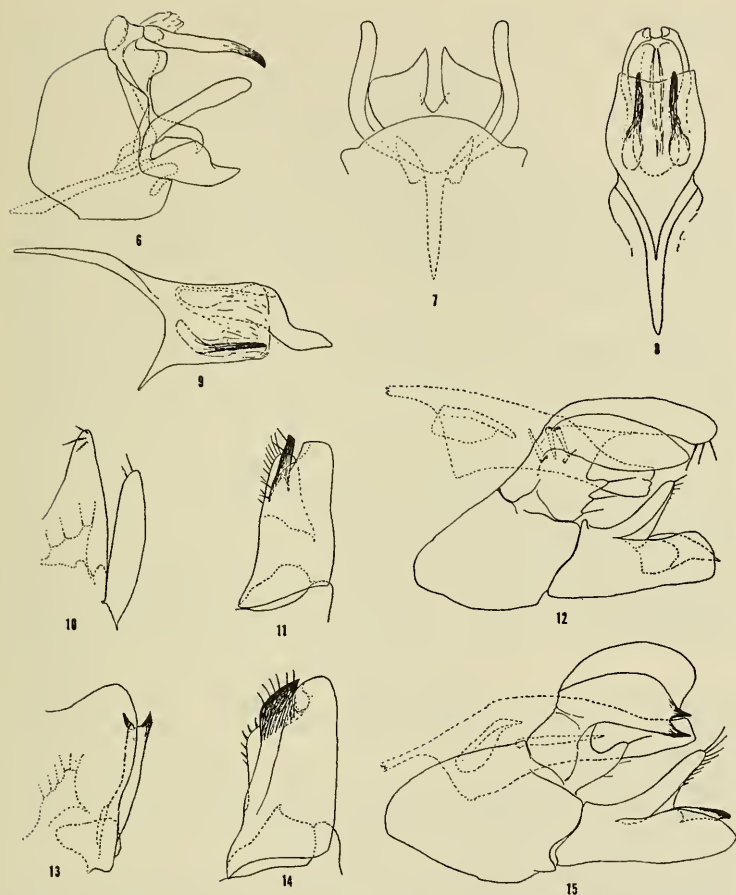
This species was recently described from Iguazú, Argentina. Its presence a short distance downstream is hardly surprising.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 1 ♂.

***Polyplectropus hamulus* new species**

Figures 6–9

This species is close to *P. banksianus* Flint which is known from the central Amazon. From *banksianus*, *hamulus* may be recognized by the long, narrow, ventromesal lobe of the cercus; by the shorter, straighter



FIGS. 6-15. *Polypectropus hamulus* n.sp.: 6, genitalia, lateral; 7, ninth sternum and claspers, ventral; 8, aedeagus, dorsal; 9, aedeagus, lateral. *Cernotina medioloba* n.sp.: 10, lobe of tenth tergum and cercus, dorsal; 11, clasper, ventral; 12, genitalia, lateral. *C. chelifera* n.sp.: 13, lobe of tenth tergum and cercus, dorsal; 14, clasper, ventral; 15, genitalia, lateral.

spines of the aedeagus; and the blunt apices of the apicolateral arms of the aedeagus.

Adult: Length of forewing, 5-6 mm. Color generally grey; antennae, legs, and venter yellowish; head with white hairs frontally; forewing with costal margin dark, remainder of wing irregularly mottled with

light grey. Male genitalia: Ninth sternum broad, anterior margin produced into a broad, truncate lobe. Tenth tergum membranous. Cercus composed of a dark-tipped dorsomesal, spinelike lobe which is slightly arcuate in dorsal aspect; dorsolateral lobe small and truncate; ventromesal lobe narrow, elongate, with tip produced into a decurved hook. Clasper with dorsolateral lobe long, slender, and terete; ventromesal lobe scoopshaped, short with an apicomesal point. Aedeagus with a tubular collar and long basodorsal straps; apicoventrally with a pair of long, nearly straight spines arising from enlarged bases, apico-dorsally with a sclerotized structure whose lateral arms are in dorsal view sharply angled mesad and whose tips are truncate and almost touching.

Material: Holotype, male: Argentina, Prov. Misiones, Puerto Rico, 4-8 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72160. Paratypes: Same data, 3 ♂.

Nyctiophylax Brauer, 1865

Nyctiophylax neotropicalis Flint

Nyctiophylax neotropicalis Flint, 1971:28.

This small, black species which appears to be widespread over South America, is now known from Argentina, Brazil, and Colombia.

Material: Prov. Misiones, Puerto Rico, 4-8 April 1971, 6 ♂, 500 ♀.

Cynnellus Banks, 1913a

Cynnellus bifidus Flint

Cynnellus bifidus Flint, 1971:32.

Cynnellus bifidus was described from several localities in the central Amazon basin. In addition to the two males taken at Arroyo Saladillo, many females were collected from both localities in Santa Fe, but cannot be determined to species at this time.

Material: Prov. Santa Fe, Arroyo Saladillo, near Santa Fe, 2 April 1971, 2 ♂.

Cynnellus arotron Flint

Cynnellus arotron Flint, 1971:32.

Similarly to the preceding species, *C. arotron* was described from the Amazon basin and is now recorded from the upper Río Paraná.

Material: Prov. Misiones, Puerto Rico, 4-8 April 1971, 16 ♂.

Cynnellus mammillatus Flint

Cynnellus mammillatus Flint, 1971:30.

This species is common in the Amazon basin of Brazil, and is here recorded from Misiones, Argentina.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 1 ♂. Capiovi, 5 April 1971, 5 ♂.

Cernotina Ross, 1938

***Cernotina medioloba* new species**

Figures 10–12

This species is clearly related to *C. subapicalis* Flint which is widely distributed in the Amazon basin. It differs most noticeably in the shape of the claspers, especially their basodorsal lobe which is not displaced into a subapical position, and the apicomesal lobe which is long and slender.

Material: Length of forewing, 3.5–4.5 mm. Color generally fuscous; antennae and bases of legs cream-colored, hairs on middle of head and thorax white; forewing fuscous with a narrow white band along posterior margin. Male genitalia: Ninth segment slightly produced and rounded anteriorly. Tenth tergum membranous, bilobed, each lobe with several stout apicoventral setae. Cercus 2-lobed: dorsolateral lobe elongate, tip rounded; ventromesal lobe broad, halves united mesally, slightly produced dorsolaterally, with a row of enlarged setae along posterior margin. Clasper with basodorsal lobe large, erect, with a row of enlarged setae along mesal margin; apicomesal lobe elongate, slender, well separated from body of clasper, with several enlarged setae. Aedeagus tubular, tip constricted, with 4 small internal spines, and a basal sclerite, Y-shaped in dorsal aspect.

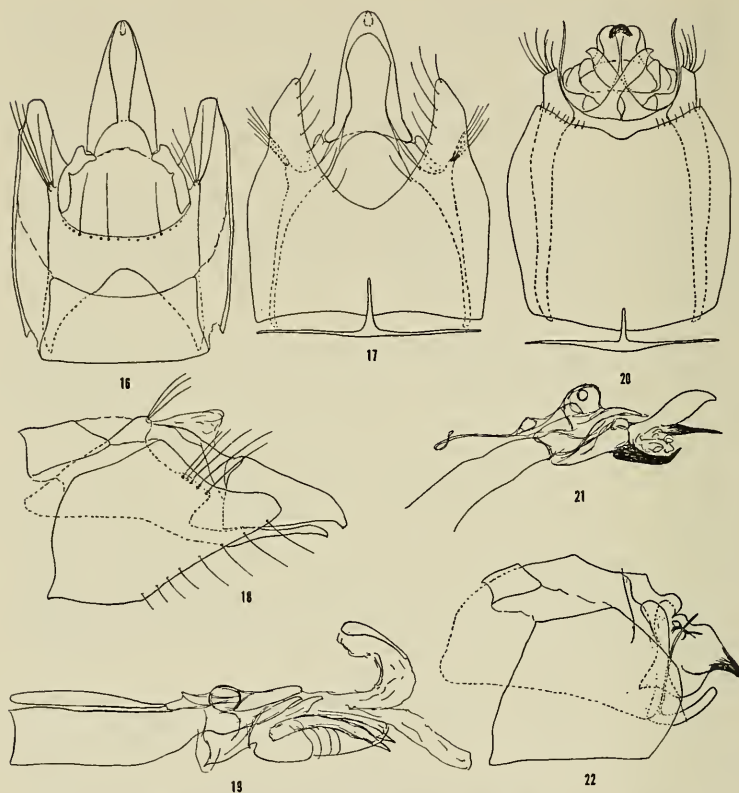
Material: Holotype, male: Argentina, Prov. Santa Fe, Arroyo Saladillo, near Santa Fe, 2 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72161. Paratypes: Same data, 6 ♀.

***Cernotina chelifera* new species**

Figures 13–15

This species is also related to *C. subapicalis* Flint. From this species, *chelifera* may be recognized by the bifid apex of the dorsolateral lobe of the cercus and its partial union with the tenth tergum.

Adult: Length of forewing, 3.5–4 mm. Color light brown; white hairs mesally on head and thorax; forewing pale brown with a paler band along posterior margin. Male genitalia: Ninth segment produced anterolaterally. Tenth tergum short, shallowly divided apicomesally, ventrolaterally fused to dorsolateral lobe of cercus. Cercus with dorsolateral lobe fused to ventrolateral margin of tenth tergum, apex produced into 2 short, black spines; ventromesal lobes narrowly united mesally, dorsolateral angles produced, posterior margin with enlarged setae. Clasper with basodorsal lobe large, with a mesal row of enlarged setae; apicomesal lobe broad, apex pointed. Aedeagus with apex constricted, with an elongate internal spine, and a basal sclerite Y-shaped in dorsal aspect.



FIGS. 16-22. *Betrichia argentinica* n.sp.: 16, genitalia, dorsal; 17, genitalia, ventral; 18, genitalia, lateral; 19, aedeagus, lateral. *Abtrichia antennata* Mosely: 20, genitalia, ventral; 21, aedeagus, lateral; 22, genitalia, lateral.

Material: Holotype, male: Argentina, Prov. Misiones, Capioví, 5 April 1971, C.M. & O.S.Flint, Jr. USNM Type 72162. Paratypes: Same data, 1 ♂, 1 ♀.

HYDROPTILIDAE

Betrichia Mosely, 1939

***Betrichia argentinica* new species**

Figures 16-19

This species, on the basis of genital structure, is closely related to the type-species, *B. zillbra* Mosely, yet it differs in possessing 3 rather

than 2 well-developed ocelli. The genitalia of *argentinica* differ in having the posterior margin of the eighth sternum deeply cleft, in having the subgenital plate broad and surpassing the claspers, and in having a pair of elongate spines in the aedeagus.

Adult: Length of forewing, 3 mm. Color fuscous, head and thorax covered with green hairs; forewing mottled green and fuscous. Head and antennae simple; ocelli 3. Spurs: 1,3,4. Seventh sternum with a slender apicomesal process. Male genitalia: Eighth sternum produced posterolaterally; in ventral aspect broadly and deeply divided, posterior margin with a row of stout setae. Ninth segment with anterolateral angle produced into a blunt point; posterolateral margin with a row of enlarged setae borne on a low shoulder. Subgenital plate open dorsally, broad basally, tapering to a slightly hooked apex. Claspers united mesally, elongate, thin in lateral aspect, slightly shorter than subgenital plate. Aedeagus with typical basal tube, basal loop, and midlength complex; apex with basolateral plates, a pair of elongate basal spines, and membranous apical lobes, one of which bears on upper surface a darkened, sclerotized region.

Material: Holotype, male: Argentina, Prov. Misiones, Capióvi, 5 April 1971, C.M. & O.S.Flint, Jr. USNM Type 72163.

Abtrichia Mosely, 1939

Abtrichia antennata Mosely

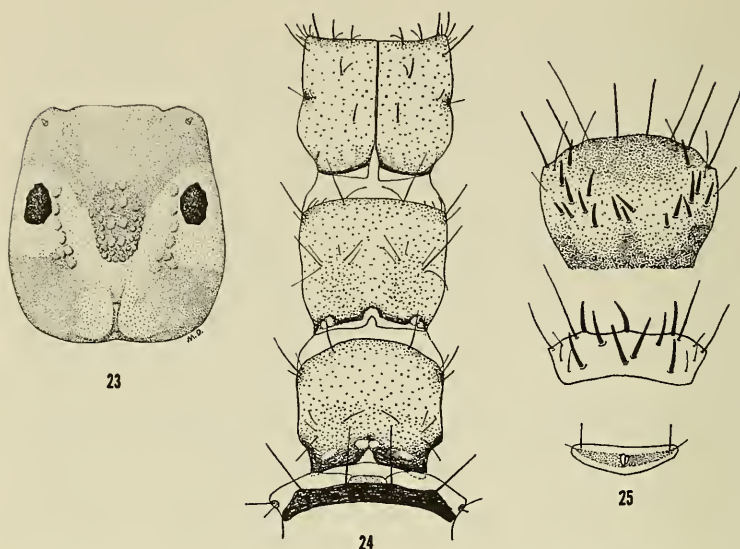
Figures 20–25

Abtrichia antennata Mosely, 1939:227.

This species was described from Santa Catarina in Brazil and not recorded since. I have a long series from the type-locality, Nova Teutônia, and have compared the genitalia of these with that of the male metamorphotype collected in Argentina. The figures of the male genitalia were prepared from the Brazilian example, and those of the larva from the Argentinian. The adult is not further described here as the original figures and descriptions, supplemented by the new figures are adequate for its identification.

The cases of the immature stages were found tightly attached to rocks in riffle areas at Mbopicua. These larvae are most similar to those of *Zumatrichia antillensis* Flint. The larvae of *antennata* may be recognized by the papillae on their head which are lacking on the larvae of the few species of *Zumatrichia* that are known.

Larva: Length to 4 mm. Sclerites pale yellow, marked with brown. Stem of frontoclypeal suture well marked, arms obsolete. Anterior margin of frontoclypeus truncate; posteromesally with rows of papillae. A row of papillae mesad of each eye. Pronotum with anterior margin darkened; divided mesally. Femora with spikelike setae dorsally. Abdomen with nine tergites: first transverse with 2 pairs of erect setae; tergites 2–7 much smaller, with a pair of central pores and a pair of



FIGS. 23–25. *Abtrichia antennata* Mosely: 23, larval head, anterior (drawn by Mr. Michael Drunkenbrod); 24, larval thoracic nota and first abdominal tergum, dorsal; 25, larval ninth, eighth, and seventh tergites, dorsal.

erect setae; eighth tergite large, transverse, with numerous large, black setae, 3 of which are borne from posterior margin; ninth tergite slightly broader than long with many large, black setae. Segments 1 and 8 each with a small seta-bearing lateral sclerite; segments 2–7 with 2 pairs of such sclerites. Anal claw with dorsal seta small and pale. Abdomen with segments 5–7 greatly enlarged at maturity.

Case: Length to 5 mm, width 2 mm. Silken, oval, domed. Larval case with a small circular opening at each end and open ventrally. Pupal case with openings closed with silk.

Material: Prov. Misiones, Mbopicua, 6–7 April 1971, 2♂ metamorphotypes, many larvae and pupae.

HYDROPSYCHIDAE

Leptonema Guerin-Meneville, 1843

Leptonema columbianum Ulmer

Leptonema columbianum Ulmer, 1905a:61.—Navas, 1917:404; 1930:132.—Mosely, 1933:13.

The species, originally described from Colombia, was recorded from Santa Fe by Navas, and is also recorded from Ecuador, Bolivia, Paraguay,

and Brazil. This identification is based, in the absence of males, on the dilated tibia and tarsus of the midleg in the female.

Material: Prov. Santa Fe, Arroyo Saladillo, near Santa Fe, 2 April 1971, 4 ♀.

Leptonema crassum Ulmer

Leptonema crassum Ulmer, 1905a:58.—Mosely 1933:12.

This large, brownish species was originally described from Brazil, but is widely distributed over South and Central America. The following is the first record for Argentina.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 2 ♂, 3 ♀.

Leptonema dissimile Mosely

Leptonema dissimile Mosely, 1933:43.

Originally described from Bolivia, the species is now recorded from Argentina. The genitalia of these males agree perfectly with the figures and description of the genitalia of the type. The females have a yellow cellule on the first anal vein of the hindwing, as does the female of a pair taken in copula in Surinam.

Material: Prov. Misiones, Mbopicua, 6–7 April 1971, 2 ♂, 2 ♀.

Neoleptonema Ulmer, 1907c

Neoleptonema aspersum Ulmer

Neoleptonema aspersum Ulmer, 1907c:61.—Mosely, 1931:170.

This species, although not reported from Argentina previously, is apparently widespread in South America being known from Brazil and Guyana. The males in this series are much larger than the females.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 2 ♂, 8 ♀.

Synoestropsis Ulmer, 1905a

Synoestropsis pedicillata Ulmer

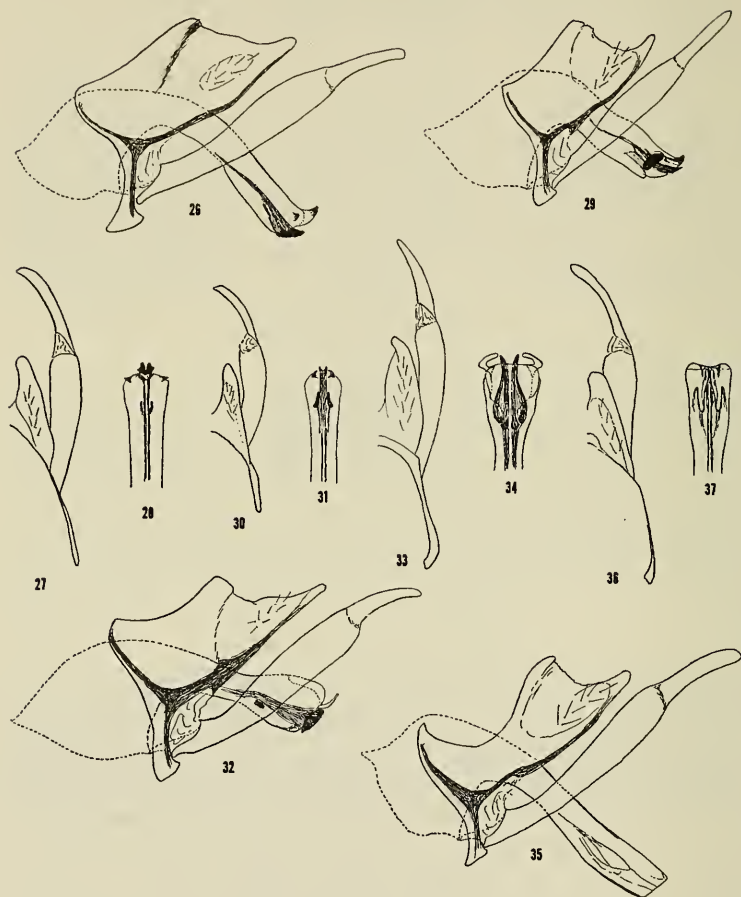
Synoestropsis pedicillata Ulmer, 1905a:43; 1913:392.—Flint, 1966:8.

Ulmer recorded the presence of this species in Argentina; the types were from Santa Catarina, Brazil.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 1 ♀.

Smicridea McLachlan, 1871

All the species encountered on this trip belong to the subgenus *Rhyacophylax* Müller. This subgenus lacks the two pairs of internal reticulate sacs in the subapical abdominal segments of the male.



FIGS. 26-37. *Smicridea argentina* (Navas): 26, genitalia, lateral; 27, lobe of tenth tergum and clasper, dorsal; 28, tip of aedeagus, dorsal. *S. discalis* n.sp.: 29, genitalia, lateral; 30, lobe of tenth tergum and clasper, dorsal; 31, tip of aedeagus, dorsal. *S. appendiculata* n.sp.: 32, genitalia, lateral; 33, lobe of tenth tergum and clasper, dorsal; 34, tip of aedeagus, dorsal. *S. weidneri* n.sp.: 35, genitalia, lateral; 36, lobe of tenth tergum and clasper, dorsal; 37, tip of aedeagus, dorsal.

Smicridea (R.) *argentina* (Navas), NEW COMBINATION

Figures 26-28

Badallus argentinus Navas, 1918:21.*Rhyacophylax argentinus* (Navas).—Navas, 1920c:42.—Schmid, 1949: 341.

Navas described the species under the name of *Badallus argentinus* from Santa Fe, Argentina, and later recorded it from Paraguay and Peru. Subsequent records, however, must be viewed with caution considering the large number of superficially similar species in the genus. The examples here recorded agree in characters of size, coloration, and genitalia with the type as redescribed by Schmid.

New figures of the male genitalia are presented to facilitate comparison with the other species herein described. The three dorsal points at the tip of the aedeagus are diagnostic.

Material: Prov. Santa Fe, Río Salado, Santo Tomé, 30-31 Mar. 1971, 8♂, 33♀.

Smicridea (R.) *discalis* new species

Figures 29-31

This species is closely related to *S. argentina*, as is shown by the similarity in coloration and the presence of small points at the apex of the aedeagus. *S. discalis* may be recognized by the presence of only 2 apicodorsal points on the aedeagus, and the presence of a pair of internal, ovoid plates subapically on the internal sclerite of the aedeagus.

Adult: Length of forewing, 4 mm. Width of eye middorsally not quite $\frac{1}{2}$ that of interocular distance. Color brown; with darker transverse bands at anastomosis and at midlength of apical cells, latter bordered inwardly by a paler band, indication of darker spots in cells M and 3A. Abdomen without internal sacs. Male genitalia: Ninth segment with anterolateral margin only slightly produced. Tenth tergum deeply divided apicomeresally; tergite in lateral aspect gradually narrowed apicad, in dorsal aspect with apex directed posteriad, rounded. Clasper with basal segment long, slightly inflated apicad; apical segment tapering to a blunt point. Aedeagus with basal section enlarged, at right angles to axis of stem which is barely longer than basal section; apex with a pair of dorsolateral points, with an elongate internal sclerite bearing an ovoid plate subapically in lateral aspect.

Material: Holotype, male: Argentina, Prov. Misiones, Puerto Rico, 4-8 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72164. Paratypes: Same data, 10♂, 14♀.

Smicridea (R.) appendiculata new species

Figures 32-34

Although this species is quite different from the others described in the subgenus, it may be compared to the *columbiana* group. From all described species it differs in possessing a pair of apicodorsal appendages and a dorsal depression at the tip of the aedeagus. The color of the forewing, bright yellowish brown with three transverse fuscous bands, is also distinctive.

Adult: Length of forewing, 5 mm. Width of eye middorsally about $\frac{1}{3}$ that of interocular distance. General color bright yellowish; forewing with 3 distinct, narrow, transverse fuscous bands, outermost midway of apical cells, second along anastomosis, third very near wing base, with dark spots in cells M and 3A. Abdomen without internal reticulate sacs. Male genitalia: Ninth segment with anterior margin produced into a broad, round lobe. Tenth tergum divided apicomesally; tergite in lateral aspect with a narrow apex, in dorsal with narrow apical portion angled mesad. Clasper with basal segment long, barely enlarged apicad; apical segment tapering to a blunt point. Aedeagus with base greatly enlarged, angled to axis of stem, apical section slightly enlarged; apex with a pair of slender, dorsal appendages, dorsal surface bearing a thin carina for some distance on each side, with internal sclerite considerably widened apically, in dorsal aspect with 2 halves pointed and slightly divergent apically.

Material: Holotype, male: Argentina, Prov. Santa Fe, Arroyo Saladillo, near Santa Fe, 2 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72165. Paratypes: Same data, 1 ♂. Río Salado, Santo Tomé, 30-31 Mar. 1971, 3 ♀. Prov. Misiones, Puerto Rico, 4-8 April 1971, 2 ♂.

Smicridea (R.) weidneri new species

Figures 35-37

Rhyacophylax brasilianus (nec. Ulmer).—Flint, 1966, p. 8.

I recently have been able to study additional type material of the species *S. (R.) brasiliانا* (Ulm.) that is in the Ulmer collection now at the Zoologischen Staatsinstituts und Zoologischen Museums Hamburg. It is apparent that two species were mixed in the original series, the true *brasiliانا* and a second closely related species which I illustrated in 1966 and which I am here describing as new. H. Weidner in 1964 published a paper, unknown to me in 1966, listing the caddisfly types in the Hamburg Museum collection. His statement under *Rhyacophylax brasilianus* on page 95 "Brasilien, Sta. Catharina, ♂, Holotype (von Ulmer selbst bezeichnet)" I consider to be a lectotype designation. As this designation precedes mine of 1966, the latter is clearly invalid, and the concept of the species rests with the specimen designated by Weidner.

The species *brasiliانا* is closely related to *weidneri*, but differs in being slightly larger and more obscurely marked. Genitally *brasiliانا* bears a pair of small, serrate, lateral processes near the tip of the aedeagus, has slightly different internal sclerites in the aedeagus, together with a more heavily sclerotized ventral margin of the tenth tergum.

Adult: Length of forewing, 5 mm. Width of eye middorsally slightly more than $\frac{1}{2}$ that of interocular distance. General color yellowish, female with pale areas more infuscate; forewing with 3 distinct transverse bands, outermost midway of apical cells, beyond which the wingtip is slightly infuscate and basad of which there is a pale band, second along anastomosis, and third near wing base, dark spot in cell M. Abdomen without internal sacs. Male genitalia: Ninth segment with anterior margin produced in an upturned, pointed lobe. Tenth tergum divided apicomeresally; tergite in lateral aspect with a narrow apex and in dorsal with tip rounded. Clasper with basal segment long, slightly inflated apicad; apical segment bluntly pointed. Aedeagus with base greatly enlarged, angled to axis of stem which is long and slender; apex without processes, with internal sclerites bearing an indistinct lateral structure.

Material: Holotype, male: Argentina, Prov. Misiones, Capioví, 5 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72173. Paratypes: Same data, 3♂, 13♀. Mbopigua, 6-7 April 1971, 1♂, 3♀. Other: Brazil, S. Catarina, Luderwaldt, 1♂ (Hamburg Museum, from type series of *brasiliانا*).

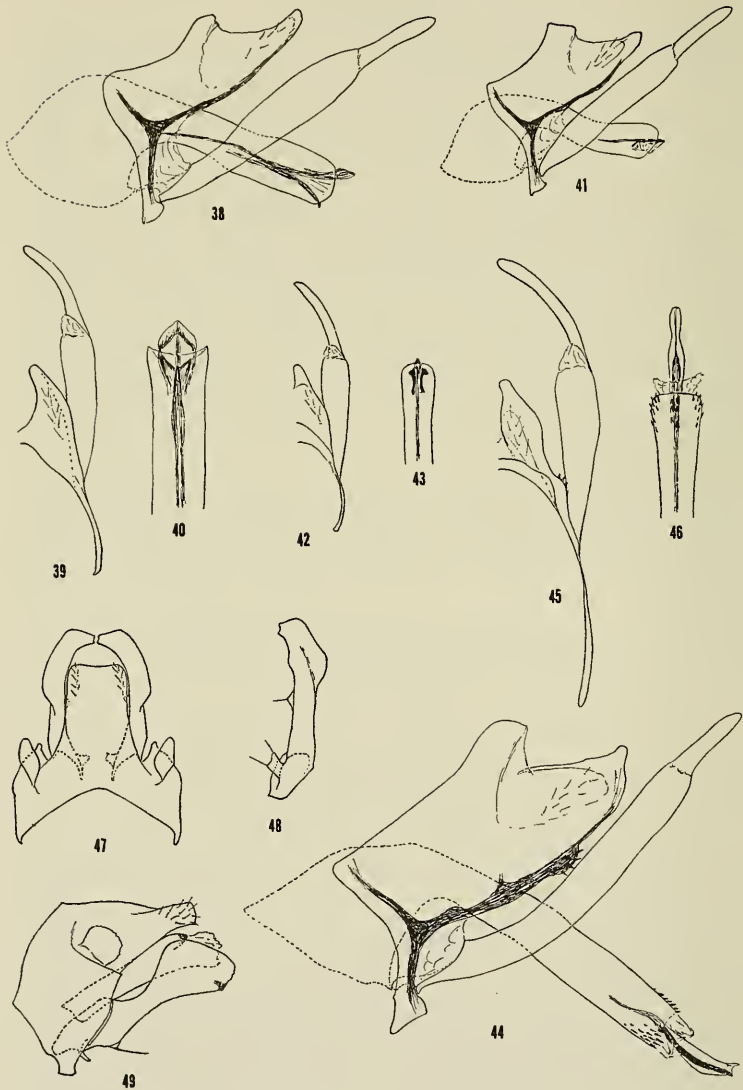
Smicridea (R.) pallidivittata new species

Figures 38-40

This and the following species are probably related as indicated by coloration, slightly enlarged eyes, and lack of appendages on the aedeagus. However, *pallidivittata* may be recognized by its larger size and structure of the internal sclerites of the aedeagus.

Adult: Length of forewing, 4 mm. Width of eye middorsally not quite $\frac{1}{3}$ that of interocular distance. Color brownish black; forewing with a transverse pale band at midlength of apical cells. Abdomen without internal sacs. Male genitalia: Ninth segment with anterolateral margin produced into a large rounded lobe. Tenth tergum deeply and broadly divided apicomeresally; tergite narrowed apically and directed dorsomesally. Clasper with basal segment long, slightly inflated apicad; apical segment with tip rounded. Aedeagus with basal section enlarged, angled at right angles to axis of stem; apex with lateral surfaces slightly produced, internal sclerite consisting of a dorsal complex which in dorsal aspect has a clear central region, and a ventral complex whose tip is bifid with halves flared.

Material: Holotype, male: Argentina, Prov. Misiones, Capioví, 5



April 1971, C.M. & O.S. Flint, Jr. USNM Type 72166. Paratypes: Same data, 12♂, 75♀. Mbopicua, 6-7 April 1971, 8♂, 38♀.

***Smicridea (R.) minima* new species**

Figures 41-43

This is one of the smallest species of the genus yet described. In addition to its size, the structure of the internal parts of the aedeagus, especially the parenthesis-like internal plates are distinctive.

Adult: Length of forewing, 2.5-3 mm. Width of eye middorsally not quite $\frac{1}{3}$ that of interocular distance. Color fuscous, females greyer; forewing with a transverse, pale band at midlength of apical cells. Abdomen without internal sacs. Male genitalia: Ninth segment with anterolateral margin slightly produced; dorsal bridge rather broad. Tenth tergum divided apicomesally; tergite tapering to a rounded, narrow apex. Clasper with basal segment elongate, parallel-sided; apical segment tapering to a blunt point. Aedeagus with basal section moderately enlarged, angled to axis of stem which is bent at midlength; apex evenly rounded, internal sclerite elongate, and in dorsal aspect with a pair of parenthesis-like lateral plates.

Material: Holotype, male: Argentina, Prov. Misiones, Puerto Rico, 4-8 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72167. Paratypes: Same data, 59♂, 75♀. Argentina-Paraguay, Alto Paraná River, 18-23 Jan. 1920, Cornell Univ. Exp., lot 569 sub 158, 9♂, 2♀.

***Smicridea (R.) spinulosa* new species**

Figures 44-46

This species is a member of the *magna* group, most closely related to *S. peruviana* (Martynov). From the latter, *spinulosa* differs in possessing a spinose lobe from the ventrolateral margin of the tenth tergum, in lacking a process from the ninth sternum, and in lacking the pair of small dorsal processes at the apex of the aedeagus.

Adult: Length of forewing, 7 mm. Width of eye middorsally not quite $\frac{1}{3}$ that of interocular distance. Color bright yellowish, females with pale areas much darker; forewing with a dark, scalloped band

←

FIGS. 38-49. *Smicridea pallidivittata* n.sp.: 38, genitalia, lateral; 39, lobe of tenth tergum and clasper, dorsal; 40, tip of aedeagus, dorsal. *S. minima* n.sp.: 41, genitalia, lateral; 42, lobe of tenth tergum and clasper, dorsal; 43, tip of aedeagus, dorsal. *S. spinulosa* n.sp.: 44, genitalia, lateral; 45, lobe of tenth tergum and clasper, dorsal; 46, tip of aedeagus, dorsal. *Cochliopsyche opalescens* n.sp.: 47, genitalia, dorsal; 48, clasper, ventral; 49, genitalia, dorsal.

at midlength of apical cells beyond which the wing is more infusate, crossveins of anastomosis dark, with small spots in cells M and 3A. Abdomen without internal sacs. Male genitalia: Ninth segment with anterolateral margin moderately produced. Tenth tergum with apicomeral division well developed; tergite in lateral aspect broad, with a small apicodorsal lobe, in dorsal aspect with an apical lobe angled slightly mesad; ventrolateral margin with a small sclerotized lobe bearing several small spines. Clasper with basal segment long, of uniform diameter; apical segment with apex rounded. Aedeagus with basal section moderately enlarged and angled to axis of stem which is long and slender; apex with a few spicules on dorsal margin and a few more elongate spicules lateroventrally, internal sclerite long, slender (everted in type).

Material: Holotype, male: Argentina, Prov. Misiones, Puerto Rico, 4–8 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72168. Paratypes: Same data, 5 ♂, 3 ♀. Mbopigua, 6–7 April 1971, 14 ♂, 34 ♀. Capioví, 5 April 1971, 2 ♀.

Leptoceridae

Leptocella Banks, 1899

Leptocella flavofasciata Ulmer

Leptocella flavofasciata Ulmer, 1907a:18.—Flint, 1966:9.

Leptocella sparsa Banks, 1920:353.—Flint, 1966:9.

This very pretty species was described from Brazil, but its synonym, *sparsa*, was described from Misiones, Argentina. It is easily recognized by its coloration; a photograph of the forewing is to be found in Flint, 1966, plate 2E.

Material: Prov. Misiones, Capioví, 5 April 1971, 1 ♀.

Leptocella separata Banks

Leptocella separata Banks, 1920:353.—Flint, 1967:22.

This species is also easily recognized by the color pattern of the forewing, which is well shown in plate 1G of Flint, 1967. It was previously known from Santa Catarina, and Rio de Janeiro, Brazil.

Material: Prov. Misiones, Capioví, 5 April 1971, 1 ♂, 2 ♀. Mbopigua, 6–7 April 1971, 8 ♀.

Leptocella punctata Ulmer

Leptocella punctata Ulmer, 1905b:75.—Flint, 1966:9.

Leptocella fenestrata Banks, 1913b:237.—Flint, 1966:9.

Leptocella ambitiosa Navas, 1933:118.—Schmid, 1949:386.—Flint, 1966:9.

This is a common and widespread species over much of South and Central America. It has been recorded from Argentina, Brazil, Bolivia,

Ecuador, and Panama. It is somewhat variable in the degree to which the brown marks on the forewings are outlined with darker brown. In these specimens from Argentina there is almost no outlining of these marks.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 3♂, 6♀.

Leptocella nigricapilla Navas

Leptocella nigricapilla Navas, 1920d:68.—Schmid, 1949:389.

Leptocella ornata Navas, 1933:119 [NEW SYNONYMY].

Navas described *nigricapilla* from the Río Paraguay, Paraguay, and later described *ornata* from Santa Fe, providing a rather good figure of the color pattern of the forewing of the latter. On the basis of these new collections it is clear that *ornata* is the female of *nigricapilla*, and *ornata* is hereby synonymized. In the same 1933 paper Navas described *ditata* from Piquete, Santa Fe, which might well be a rather badly rubbed example of *nigricapilla* or *flavofasciata*. Until it is possible to study the type, however, it is impossible to be certain of its exact identity.

Material: Prov. Santa Fe, Río Salado, Santo Tomé, 30–31 Mar. 1971, 2♂, 12♀.

Leptocella bruchi Navas

Leptocella bruchi Navas, 1920d:66.

I have been able to study the type of *bruchii*, which is in the Museum of Natural History "Bernardino Rivadavia" in Buenos Aires, and have collected a long series in the Prov. Buenos Aires. It is in appearance quite similar to *L. muelleri* Ulmer from southern Brazil. The latter has the black dashes along the longitudinal veins of the forewing continuous from base to apex, whereas in *bruchii* the dashes are lacking in the middle of the wing.

Material: Prov. Santa Fe, Río Salado, Santo Tomé, 30–31 Mar. 1971, 1♀.

Leptocella muhni Navas

Leptocella muhni Navas, 1916a:68.—Schmid, 1949:388.

Leptocella fulvocapilla Navas, 1922:399 [NEW SYNONYMY].

The species was described from Santa Fe, and appears to be widespread over South America. I was able to study the male type of *L. fulvocapilla* Navas at the Museum "Bernardino Rivadavia" in Buenos Aires. This is the same species as *muhni*, and it is herewith synonymized.

Material: Prov. Santa Fe, Río Salado, Santo Tomé, 30–31 Mar. 1971, 2♂, 5♀. Prov. Misiones, Puerto Rico, 4–8 April 1971, 14♂, 8♀. Capióví, 5 April 1971, 1♂. Mbopícuá, 6–7 April 1971, 7♂, 12♀.

Leptocella splendida Navas*Leptocella splendida* Navas, 1917:403.

The species was described from Santa Fe and later recorded from Bolivia. It is a small and strikingly colored species which is identified on the basis of the original description and examples determined as such by Nathan Banks.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 1 ♀.

Brachysetodes Schmid, 1955*Brachysetodes duodecimpunctatus* (Navas) NEW COMBINATION*Setodes duodecimpunctata* Navas, 1916b:33.

I am transferring this species, which seems to be common over much of South America, to *Brachysetodes* with which it agrees in venation and to a lesser degree, genital pattern.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 3 ♂, 16 ♀. Capióví, 5 April 1971, 4 ♂, 14 ♀. Mbopícuá, 6–7 April 1971, 1 ♂.

Oecetis McLachlan, 1877*Oecetis excisa* Ulmer*Oecetis excisa* Ulmer, 1907a:15.*Oecetis mutila* Navas, 1918:22.—Schmid, 1949:382.*Oecetis castilleja* Navas, 1920a:134.—Schmid, 1949:381 [NEW SYNONYMY].*Oecetis muhnia* Navas, 1920b:28 [NEW SYNONYMY].

This species is frequently encountered in collections from the Paraná Basin and adjacent areas. It was described from Santa Fe, and it or its synonyms have been recorded from Bolivia and Paraguay. Navas described *O. mutila*, *O. castilleja*, and *O. muhnia* all from Santa Fe. Schmid, after studying the type, synonymized *mutila*, and suggested that *castilleja* might be a synonym. I have studied a male determined by Navas as *castilleja* and it is *excisa* also. The original figures and descriptions also leave no room for doubt but that all three are *excisa*, and they are herewith synonymized. *O. apicata* Navas from Santiago del Estero also appears to be the same, but until its type is found or other topotypic collections are made. I prefer to keep its status open. Rather surprisingly we did not collect this species in Santa Fe.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 4 ♀. Capióví, 5 April 1971, 2 ♂, 3 ♀. Mbopícuá, 6–7 April 1971, 6 ♀.

Oecetis amazonica (Banks)*Oectina amazonica* Banks, 1924:447.*Oecetis amazonica* (Banks).—Fischer, 1966:109.—Flint, 1967:22.

Banks described *amazonica* from Manaus, Brazil, and recorded it from Peru and Piedra Blanca, Argentina. At Santa Fe we collected

this species, but not *excisa* which has been collected there on previous occasions.

Material: Prov. Santa Fe, Río Salado, Santo Tomé, 30–31 Mar. 1971, 1 ♀. Arroyo Saladillo, near Santa Fe, 2 April 1971, 2 ♂.

Oecetis punctipennis (Ulmer)

Pseudosetodes punctipennis Ulmer, 1905b:77.

Oecetina parishii Banks, 1915:631.—Flint, 1966:10.

Oecetis bridarollina Navas, 1933:116 [NEW SYNONYMY].

Oecetis punctipennis (Ulmer).—Flint, 1966:10.

Known from Brazil and Guyana, this species is apparently widespread over South America. Navas' original description of *O. bridarollina* from Santa Fe, Argentina, accompanied by a good figure of its coloration, is sufficient to show that it is the same as *punctipennis* with which it is now synonymized.

Material: Prov. Misiones, Puerto Rico, 4–8 April 1971, 1 ♂.

HELICOPSYCHIDAE

Cochliopsyche Müller, 1885

Cochliopsyche opalescens new species

Figures 47–49

This species is very closely related to *C. clara* (Ulmer), known from Santa Catarina, Brazil. *C. opalescens* differs in possessing a mesal process from the sixth sternum in addition to small differences in the genitalia, especially in the claspers which lack the pair of small points dorsally in the expanded apical portion and which have a longer narrowed basal section.

Adult: Length of forewing, male 5.5 mm, female 4.5 mm. General color brown; head and thorax dorsally with pale brown hairs; forewing covered with fuscous hairs, with scattered, small, silvery spots especially on veins. Abdomen of male with second through fifth sterna with large clear lateral areas surrounded by sclerotized margins, second and third segment with darkened posterolateral patches, hairs on sterna arising from large, clear tubercles; sixth sternum with a mesal pointed process about half as long as sternum. Male genitalia: Ninth segment very narrow ventrally, widened laterally from both anterior and posterior margins, dorsally grading imperceptibly into tenth tergum. Tenth tergum a simple elongate lobe, slightly indented apicomeresally. Cercus broader than long. Clasper with a distinct, terete, basal section widening into a broad apical flap with 2 small teeth apicoventrally; with a small basomesal flap with 1 or 2 enlarged setae. Aedeagus tubular, elongate, membranous apically, with a small internal sclerite.

Material: Holotype, male: Argentina, Prov. Misiones, Puerto Rico, 4–8 April 1971, C.M. & O.S. Flint, Jr. USNM Type 72169. Paratypes: Same data, 1 ♂, 3 ♀.

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